Teaching portfolio

1. Teaching CV: A list of any lecturing and supervision tasks, including specification of academic fields, scope, level (bachelor, master, continuing education, PhD) as well as any external examiner tasks.

Stationary hydraulics (3 ETCS) – Civil Engineering.A course in stationary hydraulics related to urban drainage, river and streams.

Physical chemistry and transport processes (3 ETCS) – Chemistry, Biotechnology. A course in stationary hydraulics, transport diffusion and reactor hydraulics.

Numerical methods (2 ETCS) – Chemistry, Biotechnology.An introductory course in in fundamental numerical methods for solving differential equations.

Urban Hydraulics (3 ETCS) - Physical Geography. A course related Climate adaption of our cities.

Hydrology (1½ ETCS) - Civil Engineering, Water and Environment. A course related to numerical modelling of water abstraction and water treatment of drinking water.

Remote Sensing (5 ETCS) - Physical Geography. How to measure remotely in a complex environment.

River hydraulics (1 ETCS) - Civil Engineering, Water and Environment. Non-uniform flows, sediment transport and measurement techniques

Project supervision (15 +15 ETCS) - Civil Engineering1 and 2. semester : Model in reality – reality in models

Project supervision (15 ETCS) - Civil Engineering3. semester : Infrastructure systems in city development

Project supervision (15 ETCS) - Civil Engineering6. semester : Waste water treatment and rivers as receiving watersWaste

Water treatment (½ ETCS) – Environmental Engineering, Water and EnvironmentDesign and operation of secondary settling tanks

Computational Fluid Dynamics (2 ETCS) - Civil Engineering, Water and Environment Fundamental hydrodynamics, numerical methods, commercial CFD programs

Bioreactor and Bioprocess modelling (2 ETCS) - Biotechnology. Model development of fluidized bed systems, immobilized reaction systems and Membrane reactors

Urban wind climate modelling (½ ETCS) – Architecture and Design. Modeling of wind in cities and evaluation of wind climate

Modelling of heterogeneous processes (1 ETCS) – Biotechnology. Modelling of heterogeneous processes using computational fluid dynamics

Project supervision (15 ETCS) – Water and Environment. 7. semester : Marine and freshwater systems

Project supervision (15 ETCS) – Water and Environment. 9. semester : Tri- semester: numerical and experimental methods.

Supervision of 9 PhD students:Jesper Laursen (2003-2006), Thomas Ruby Bentzen (2005-2008), Claus Köser (2008-2011), Jesper Ellerbæk Nielsen (2009-2013), Elham Ramin (DTU, 2010-2014), Malte Ahm (2011-2015), David G. Jensen (2012-2015), Kristoffer Nielsen (2016 -), Anja Thrane Hejselbæk Thomsen (2016 -).

PhD course: Environmental fluid dynamics (2002) - lecturesPhD course: Rain measurement and analysis in an urban hydrological context (2013) – development, planning and teachingPost doc. supervision: Thomas Ruby Bentzen (2009-2010), Søren L. Thorndahl (2009-2010), Damian Murla Tuyls (2016 -)

I have, over 25 years, been supervisor or co-supervisor for over 60 master theses.Examples from the last 2 years of master thesis projects I have supervised:

Kristoffer Nielsen, 2014-2015: Optimized release of stormwater from detention basins to streams.

Anja Thrane Hejselbæk Thomsen, 2014-2015:Modelling and evaluating the oxygen depletion in small rivers during CSO events

Azra Ferhatbegovic, 2014-2015:The efficiency of green roofsKristian Sunesen Førby, 2015: Preventing flooding of Hobro city and Vestrefjord in the future climate

Michael Mølskov Rasmussen & Kristoffer Stenkær Schneidelbach, 2015-2016:Applying Neural Networks for hydraulic modelling and model predictive real-time control

Niels Fræhr, Victor Gustenhoff Ludvigsen & Claus Liltorp, 2016-2017 (ongoing):Hydrodynamic design of detention ponds optimized for sedimentation and cost-efficient maintenance

I have functioned as internal and external censor for both courses and project work for over 40 exams – mostly at Aalborg University, but also at DTU and Aarhus University. I find the job as censor just as important and rewarding as being the supervisor.

2. Study administration: A list of any study administration tasks, e.g. study board membership, head of studies or semester or course coordinator, accreditation, etc.

12 years as member of the study board for Civil Engineering

3. University pedagogy qualifications: A list of any completed courses in university pedagogy, PBL courses, workshops, academic development projects, collegial guidance and supervision, etc.

I started at Aalborg University as a PhD student in 1992, in the department of Civil Engineering. I have, throughout the years, taught courses or given supervision every semester.

I have filled the positions of PhD student, Assistant professor, Associate professor, Associate professor with special qualifications and Professor with Specific Responsibilities.

I have completed the course “University Pedagogy for Assistant Professors” held by Aalborg University over 1½ years.

4. Other qualifications: Conference attendance, editorials, presentations, etc. relating to education, 'University Teaching Day', etc.

Non - so far

5. Teaching activity development and teaching materials: A list of any contributions to the development of new modules, teaching materials, study programmes, e-learning, collaboration with external business partners, etc.

Have co - written all curriculum describtions for Environmental engineering and water and environment.

Has been central in planing and writing curriculum describtions for physical geography at its introduction to Aalborg University.

When I was studying myself, I had the job of student counselor for Civil Engineering. The main activity was to assist students that had problems in their studies and needed help to understand their options. Although this was a long time ago, it gave me insight into which types of problems students can experience, and how to solve them. This have helped me later on when helping students following my own courses or under my supervision. It also gave me the fundamental desire to meet the students at their level and give them tools to achieve successful study techniques.

6. Teaching awards you may have received or been nominated for.

To my great joy and pleasure, I have received two awards for being the best teacher that year.

1996: Teacher of the year award - K study board
1997: Teacher of the year award - K study board

7. Personal reflections and initiatives: Here you may state any personal deliberations as regards teaching and supervision, any wishes and plans for further pedagogic development, plans for following up on feedback/evaluations from students, etc.

The teaching system used in Aalborg University is commonly known as the problem based learning (PBL) approach. The initial task is the analysis of real-world problems and development of solutions from that. The idea is to work as an engineer already from a student's first day at Aalborg University.

I find this approach well suited for my style of teaching. I prefer to answer most questions with a new question, to get the student to reflect about his or her knowledge and to guide them towards new insights, instead of just plain answers. This can, of course, be frustrating and is therefore most suitable for older and more mature students.

I am working towards changing my method of teaching. Instead of traditional lectures followed by problem work, I am working on replacing the lectures with video lectures and using the extra time now available for more in-depth discussions with the students. I will spend more time on the absolute fundamental theory and methods. It will give the possibility to address the more complicated and abstract part of the subject matter later on.
In one area I am probably more old-fashioned than most people. I actually prefer blackboard and chalk instead of PowerPoint presentations. I find that the time it takes to write things or make a drawing slows down the pace, and makes it possible for both the students and myself to reflect and elaborate. I also believe that taking notes during the lecture increases the students' ability to remember, and makes the knowledge more operational. The physical movement of hands while the mind tries to condense what has been said is, in my opinion, an important aspect of the learning experience.

8. Any other information or comments.

Type your answer here...